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ABSTRACT

This paper discusses human communication and information in the context of Zambia's national environment, with an emphasis on the relationship between human communication and information transmission using modern technology. The place of the information user in the planning process is considered, and the important roles of internal and external communications systems for the individual are stressed. It is argued that information technology should exist to assist the information user in having access to useful information in a conveniently usable form for his benefit and for that of others, and Zambia's planning for information communications is interpreted in this light. A figure depicts the characteristics of information as a function of needs, and a table shows the target information user populations and most important information media in the economic and scientific and technological sectors. (18 references) (EW)

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AFRICOM 87

HARARE, ZIMBABWE

SEPTEMBER 8 - 10 1987

CONFERENCE THEME: Towards the 21st Century
Planning for information Communication in developing countries.

THIS PAPER: The place of the information user in the planning process for information communication: The Zambian experience.

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ABSTRACT:

The paper attempts to discuss human communication and information in the context of Zambia's national environment. The emphasis is on the relationship between human communication and information transmission using modern technological gadgets. However, there is a strong bias in favour of the information user and the national context. The place of the information user in the planning process for information communication is intensely stressed because the author believes communication cannot take place unless both the source and receiver possess the same level of understanding. That is why the "Internal and the External Systems" play such an important role in the transmission and sharing of ideas. Still, the information user as an individual is very complex because of a variety of needs to be satisfied at different times. We argue that information technology is there to merely assist the information user to have access to useful information in a conveniently usable form for his benefit and that of others. Zambia's planning for information communications is interpreted in this light.

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INTRODUCTION AND EMPHASIS

I am not a technically minded person. For example, I know very little about the mechanical and electrical functions of my car that I have been driving for over eight years now. In the same vein, I am no computer genius nor am I a telecommunications expert. However, because of my work as a librarian, to paraphrase Professor Rousseau, nothing that concerns human communication do I consider outside my province. It is in this context that I find developments in information technology and its application to the processing and management of information in any situation obviously my area of interest. I shall, therefore, attempt to examine the role of computers, telecommunications, optical media, etc. in facilitating the transmission of information from a source to a receiver (the information user) more rapidly, accurately and efficiently thus ensuring easier access to information resources by a larger user population in order to understand and control science for the good of all mankind. It is indeed the process of human communication that plays a vital role in information and knowledge transfer which in essence is the major theme of this conference. Since I am not technically minded, it is just proper that I confine my observations and arguments to the centrality of the information user in the planning process of information communications. This will be the central argument of this paper. But first, let us briefly look at the process of human communication in general.

THE PROCESS OF HUMAN COMMUNICATION

An eminent psychologist with a keen interest in human communication, William D. Garvery (1979) has written a book appropriately entitled: Communication: the essence of science. Obviously, the essential nature of communication not only in science, but also in any other field, is an established fact. Even if one accepted science to mean the study of physical properties and their relation to social interaction, there is no doubt that communication is at the heart of current developments in this field. Scientists, technologists and other workers in scientific fields rely heavily on communication of ideas. King and Griffiths (1987) appear to support this view when they write:

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> "Professionals such as scientists, engineers, lawyers, medical practioners, managers, administrators, and so on, spend nearly 60 percent of their time communicating. This communication can take the form of interpersonal communication such as talking or listening to someone or participating in presentations of groups".

Evidently, our presence at this international conference is a clear testimony of our concern with all aspects of human communications despite the fact that each one of us present comes from a different social, academic, professional, cultural and geographical background.

Doubtless, it is through the process of communication that scientific knowledge and findings are disseminated. It is generally agreed even among the real die-hard pure scientists and confirmed technologists that communication does essentially answer the same needs in science and technology as it does in the arts, humanities and social sciences. It is, therefore, easy for one to accept the view expressed in the McBride Report (1980) that the functions of communication are the same in all branches of knowledge and activities, namely: information, socialisation, motivation, debate and discussion, education, cultural promotion, entertainment and political intergration at national, regional and international levels. That is one cardinal reason why there is need to find ways of facilitating information exchange among generators or producers of information, disseminators and users of such information. I believe very strongly that proper communication of ideas is a precondition to any type of recognition in any field of one's undertaking. It is indeed human communication that binds any society together. Consequently, our major concern at this conference is to determine ways and means that will enable proper and efficient transmission of information from a source to a receiver which fundamentally is a universally acceptable definition of the process of communication. In the pages that follow, an attempt will be made to analyse the meaning of information and receiver of such information in the context of this paper.

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USEFUL INFORMATION

Generally speaking, there is no consensus among scholars, intellectuals, researchers, professionals, and even ordinary persons on what constitutes information. Writers like Allen Kent (1974) have attempted to speculate on the reason why there is no universally acceptable definition of the concept of information when he observes that "concepts are in the eyes of the beholder, and not inherent in which the beholder beholds". I like you to think deeply on this speculation in the context of this presentation because it will apply very significantly to the problem to be discussed in relation to the information user and his needs.

Because of this lack of a consensus on the definition of information, many writers have examined the concept from different standpoints: some have emphasized its intellectual relevance; others have stressed its philosophical advantages; while other researchers and scholars are contended with its methodological aspects. It is not my intention to add to the controversies surrounding the meaning of the concept of information. Suffice to use information as a raw material, a resource and commodity of value capable of being exploited both for personal gains and the good of society as a whole. Again, information is the major base upon which the growth of knowledge so much depends, so argues Saunders (1980). It is mainly these two reasons that make it imperative to relate the acquisition, storage, transmission, organization and management of information to its overall utilization for a purpose in any organization and in any society. Putting this consideration in its right perspective does tend to make the discussion on the planning for information communication in developing countries meaningful and purposeful.

As we know, it is currently in vogue to refer to all activities dealing with information generation/production, organisation, management, dissemination and utilization as "information industry" especially in the American Society. Certainly, concern with the whole notion of transmitting and sharing ideas, facts, data, news, opinions, events and signals of significance, able to influence man's actions, behaviour and decisions as he goes about interacting with others in a given environment has recently become profitable business.

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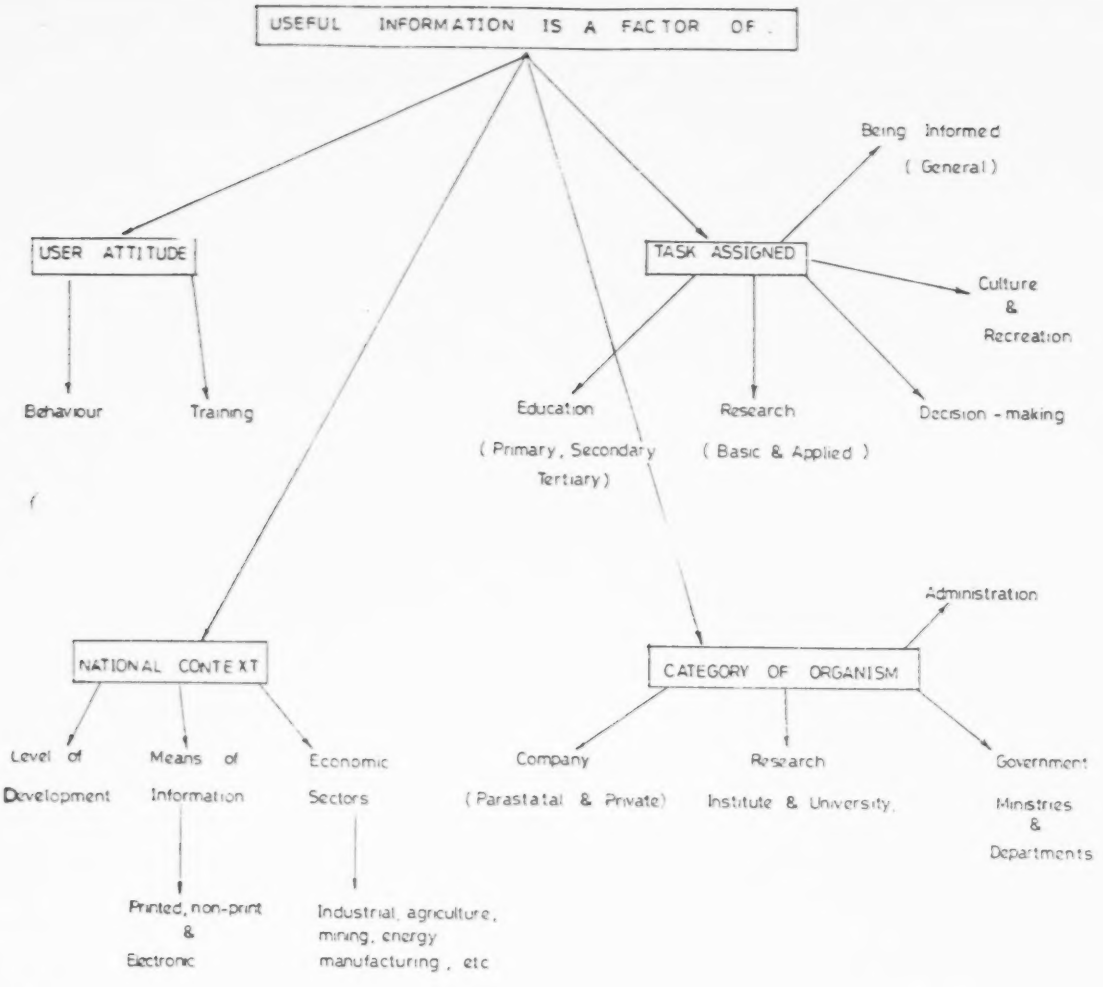
FIGURE 1



CHARACTERISTIC OF INFORMATION AS A FUNCTION OF NEEDS

ADAPTED From Unesco 's Methodological approach for identifying the information needs of the engineer.

December, 1984 p 19 b

There is no doubt that information exhange (communication) presupposes the existence of some need. Such a need may be described in terms of many factors. It is in this context that I tend to view useful information as a factor of

1 User attitude/behaviour
2 Task assigned
3 National context
4 Category of Organism (see Figure 1)

Although task assigned and category of organism are important factors in our analysis of useful information, for the purpose of this paper I shall concentrate on the information user within a given national context. Meanwhile, I would like to stress the point that information is a process which includes both personal and social component whose meaning lies in its use (Benge, 1979). Simply stated, proper utilization of information depends on certain crucial conditions:

i the availability of such information in a clear, conveniently usable form to any user community and as appropriate to the customers, to the government, to trade association, and to the public at large;

ii the absence of certain barriers like language, illiteracy, and some other pysical and mental impediments on the part of the intended user community (Lundu, 1982)

The importance of these two statements will become clearer once the paper turns to the discussion of the information user and his needs within the Zambian national context. Let us accept at the moment that the value, relevance, and significance of any piece of information is in the eyes of the beholder. In addition, the environmental conditions do prescribe how a piece of information can properly be utilized.

In line with the general theme of this conference, it would perhaps be pertinent for me to raise the following issues at this juncture:

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- How can we ensure that the information flows are tailored to the needs of the moment of decison?
- How accurate must the information be?
- How quickly must the information be made available?
- How much should we rely upon the utilization of existing information, as opposed to the production of new information?
- Who should have control over the existing stock and the new flows of information?
- Who should make decisions about which information should be produced and which should be preserved; and most importantly
- What information technology should be applied to the processing and management of information in a developing environment? (Lamberton, 1974)
- How should optical fiber media (CD ROM, CD-WORM, floppy discs, videodiscs), computer technology, telecommunications, electronic databases and even audio-visual information technology be organised and managed in order to maximise transmission of information from a source to a receiver?

This last point is deliberately being raised because of the emphasis of this conference on information technology, computer networking and the like. Nevertheless, it would be totally wrong to completly ignore such printed, non print media, personal exchange and even what I would like to refer to (for want of a better word) "native" information technology such as art, painting, and other traditional artefacts as important modes of transmitting this vital commodity from a source to a receiver. These indeed play significant role especially in an environment like Zambia and Zimbabwe. I still contend, as we shall see later, that it is the actual and even potential information user and his needs that should be the principal focus in the planning process of communications technology. It is to the information user and his needs that we now turn our attention.

THE INFORMATION USER AND HIS NEEDS

Figure 1 above gives the relationship between useful information as a factor of (a) user attitude (b) task assigned (c) national context and (d) category of organism. Out of the four factors discussed in the Unesco publication from which this diagram is taken (Unesco, 1984), it is generally accepted that user attitude torward information is the most important but at the same time the most complex to understand. Garvey, the psychologist, believes so (Garvey 1979). The reason is simply that human nature and behaviour are so unpredictable that it is impossible to determine in advance just what kind of reaction each individual will have once confronted with a particular situation. For example, imagine a snake suddenly coming into this room. Can anyone here predict how each one of us would react to the sudden presence of a snake in this room? Think about the answer to this question in terms of trying to provide information to a user community or population with all types of identified and unidentified needs!

Despite the fact that dealing with human being is so difficult (as perhaps social workers, market researchers, lawyers and medical doctors, and even information technology developers will testify), everything must be done to try to understand the information user and his needs if we have to plan effective and cost benefit information systems by the year 2000. It is the unique interest I have in the information user and his needs that I find Sereno's and Bodaken's analysis of human communication rather thought-provoking and pertinent to the theme of this conference. In their book entitled: Trans-Per: Understanding Human Communication, the authors discuss human communication as a transaction: as opposed to it being one-way action or interaction. By Communication as transaction, Sereno and Bodaken mean that "Communicators are interrelated, that one perception of a communicator can't be considered apart from all his other perceptions, that the external environment and the internal state of each person in the communication are interrelated and that a communicator cannot be considered apart from the world he knows". They believe that in any communication transaction, there are two elements at play: the "Internal System" and the "External System". This is how they distinguish the two systems:

> "The Internal System is composed of all those elements that taken together make up a unique individual. Examples of elements making up the Internal System are an individual's personal traits, his attitudes, his motives, his knowledge, his intelligence, and his past experiences - the whole inner psychological and intellectual complex..... Elements making up the Internal System are what we call private or internal stimuli. You can't see them; you can only infer them from the individual's words or behaviour". While

> "The External System is composed of elements that exist in the environment outside the individual. Examples of elements in the External System are such things as the particular words used in a message, the physical gestures of the communicators, the sounds and scents surrounding the communicators, even the temperature of the room. These elements are the public or external stimuli of the communication transaction and are potentially accessible to every participant" (Sereno and Bodaken, 1979: 8-11)

I have attempted to emphasize the difference between the perception of an individual as an information user and the influence of the world around him because it does to some extent bring out the reasons why it is so critically significant to put an acceptable premium on the information user and his needs when planning and devising information systems capable to satisfy his needs as particularly an individual rather than a member of a wider society. This indeed, I must admit, is very difficult to do. It is perhaps the influence of the Internal System, more than anything else, that the application of information technology to information processing and management should be wary of. Still, the information technology revolution is here and hence must be welcomed by developing countries. But, their impact can only be meaningful if computers, microprocessors, telecommunications, optical media, database technology, audiovisual technology are somehow related to the information requirements of an individual user.

For the purpose of our discussion, I agree entirely with the definition of an information user as understood by the U.S.A. National Commission on Libraries and Information Science 1975 publication:

"Information users are individuals, each with unique information, educational, psychological and social needs. A person may need 'practical knowledge' to solve immediate problems in his daily life and work. He may need 'professional knowledge' to further his continuing education. Or he may need 'intellectual knowledge' the kind that farthers his understanding of arts, humanities and sciences, and which enriches his personal life. Reading for pleasure, pursuing an innovative idea, or exploring knowledge just to satisfy one's innate curiosity, are other valid motives for reading, listening or looking ...."

"Organisations, like individuals, need information and knowledge. Business organisations need facts and data to forecast a market, develop a new product or adapt a new technology .... Research organisations need information to synthesize new data with known facts as part of the creative process. Government needs information at every level to formulate plans, refine decision-making, and help government workers to anticipate and resolve problems..... It is clear that information needs are felt at all levels of society, regardless of an individual's location, social condition or level of intellectual achievement and that most people and organisations feel some dependence on the availability of accurate and useful information" (1975).

Notwithstanding differences inherent in our human nature mainly as a result of influences from both our Internal and External Systems as conceptualised in the quotation given earlier, this definition of an information user is certainly likely to appeal to everyone at this conference. Table 1 summarises some actual and potential users, their needs and types of information carrying vehicles in two of the many human concerns: economy, science and technology. Obviously, the issue here is: What should come first? Information collection, vehicles for information transmission or the information user and his needs? There is no ready and universal answer to this rather fundamental question. What perhaps should be understood by information systems planners and managers is that the information user seeks information to solve his/her problem at a particular time. In the process of seeking any piece of information regarded relevant, the information user may need to

National Development Activity/ Sector	Target Information User Population	Most important information Media
The Economic Sector Agriculture, industry, Commerce, trade, manufacturing, mining, building and construction, etc. Research and Development.	Economic planners, policy-makers; managers, researchers, academic and other scholars, farmers, professionals, statisticians, students, local and national bureaucrats, political leaders, ordinary members of the Community	Unpublished materials like research materials, patents, grey literature, specifications; etc. electronic forms of information processing e.g. computers and some audio-visual technology. Books and journals
Scientific and Technological Sector Pure and applied science, agriculture, industry, manufacturing, energy, mining, building and construction, medicine, information processing, R & D, etc.	Research workers, scientists, engineers, technologists, scholars, academics, planners, managers, policy and decision makers, professionals, members of trade and professional association, etc. Not many ordinary folks are likely to be scientifically minded	Mostly current and unpublished literature: reports, theses, research reports, patents, specifications, etc. electronic forms of information handling; audio visual and micrographic media. Some published materials like books and journal literature

TABLE 1: Information user population in the economic, scientific and Technological Sectors

N.B. Activities and user population appear to be very similar in these two sectors. Hence, difficult to identify who belongs to what and who uses what information at what time.

utilize conventional forms of information transmission (e.g. printed media), or the current information technology where available (e.g. computers, optical media, satellite telecommunications, audio visual media, etc), or indeed personal consultations.

The major problem that most information providers and facilitators are faced with at the moment is how to relate the large diversity of information transmission media to the needs of each information user population. This is the realm of specialisation which I am not qualified to discuss now. At what stage does a data processing manager determine whether to use a very sophisticated personal computer, optical fiber media or telematics that Dr. Zwangobani earlier talked about in order to serve a diversity of information users in an organization? What are all these local area networks (LAN) and Wide Area networks (WAN) , CD ROM (Read only Memory), CD-PROM (Programmable Read Only Memory), CD-WORM (Write Once Read Many) meant to do? I believe they are means of facilitating access to information by a variety of information users whose information-seeking behaviour would inevitably be conditioned by their peculiar needs. We must admit that the interdisciplinary nature of say research in medicine, agriculture, technology, science, environmental pollution, population explosion, human relations, etc. has tended to create more and more information users with a multiplicity of information requirements. Still, information must be provided by using an appropriate medium of communication to satisfy each one of these user needs.

It is in this context that my view supports what Ray Walsh says about optical media. He writes:

> "Optical media should look less like online databases as the producers take advantage of the available capacity of the medium to shape something more closely adapted to the (information) users' requirements" (Walsh, 1987) (empasis in mine).

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Walsh's reference to the adaptation of optical media to the users' information requirements is in my view the substance of this conference because information technology that is not easily adapted to the needs of the information user and his environment plays no significant role in the transfer of knowledge for the good of mankind particularly for the less priveleged majority in the third world. Indeed, just managing a network is not enought as G.R. Pickering's paper aptly says. There is a very critical information user dimension to be considered in every aspect of information technology application to information processing and management especially so in our kind of environment. Whatever the conditions, the overriding goal for any financial support to plan and establish information communications systems in any country must begin with a clear analysis of the information user and his needs in the context of overall national development plans. This then brings me to the examination of useful information as a factor of the Zambian national context (Fig. 1).

THE ZAMBIAN EXPERIENCE

In terms of information technology developments, there is not much to draw on as our experiences in Zambia. Two major reasons can be advanced to support my claim: firstly, the country's level of overall development is comparatively and relatively low; secondly, because of her past colonial history, Zambia has remained totally dependent on developments taking place in Europe, North America, Japan and even South Africa. However, there are now positive signs that the country's political leaders as well as its intellectuals, professionals and ordinary citizens are realizing the dangers associated with this dependence on foreign influences because such influences do not take into consideration the environmental factors that make Zambia a unique geo-political and socio-cultural entity. It is with this realization that care must be taken not to accept foreign ideas and ideologies that might be totally irrelevant to Zambia's conditions. In this connection, I intend to lay stress on what can be done in order to prepare for the adoption and adaptation of information technology that could assist the country reduce her dependence on other countries, some of which could be quite unfriendly. My intention is to indicate to you just how far we in Zambia have recognized that the production/generation of information,

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its processing, management and utilization is not the prerogative of one information profession e.g. Computer profession, library profession, publishers and book-sellers. We believe that "a successful partnership" in the planning of information communications in Zambia requires, in the words of Joyce Kirk,

> "Knowledge of, and respect for, the skills of others, their philosophies of education and their responsibilities. This partnership operates within an environment of co-operation, support and communication" (Kirk, 1987).

Because of Zambia's national context, we believe very strongly that to organize, process and manage information as a national resource, it is important to pool our skills, knowledge, and responsibilities together in order to satisfy the potentially growing needs of Zambia's information users. We must indeed create an environment (the External System) that can lessen conflict of interests among information professionals. We certainly realize that it is the information user we are all striving to serve.

This philosophy has now been put into effect in a document presented to the Party and its Government on [illegible] We are happy to acknowledge Unesco's involvement in the preparation of this document which came out of a national seminar on National Information Policy for Zambia attended by representatives from the Posts and Telecommunications Corporation (PTC), Computer Society of Zambia, Booksellers and Publishers Association, Library Association of Zambia (ZLA), Press Association of Zambia, National Arts and Theatre Association of Zambia, and from information-oriented user professional bodies like the Law Society of Zambia, Medical Association and the Engineering Institute. We are of the view that information users' contributions to the planning process of information services in Zambia must be a key factor in determining just what type of information systems should be created or evolved to satisfy their present and future information requirements. This writer did indeed play a leading role in the organisation of the national seminar as well as in the production of the document that has been presented to the Party and its Government.

In this document, we have endeavoured to identify the information requirements of Zambia and the appropriate means through which to satisfy information users' needs as fully, promptly, cheaply and conveniently as scarce resources can allow (Gray, 1978).

This is a cardinal principle and guideline considering that Zambia is facing a deep economic crisis. It is in this context that I agree with Daniel Bell who observes that:

> "The problem of the future consists in defining one's priorities and making the necessary commitments" (Bell, 1967)

In line with Zambia's determination to get out of the current economic malaise, the information profession in Zambia has decided to define the country's priorities and to commit itself to meeting those priorities. We are trying to assemble various channels of information communications at our disposal in a manner adapted to our current and future needs. It is not our desire to imitate communications models developed in other countries although, like the Japanese have done, we are ready and willing to learn from our colleagues in the field of information elsewhere and to redefine out own conception of what information technology means and to judiciously apply it to the solution of our peculiar problems. To this end, we are more than willing to acknowledge and respect each other's skills, knowledge, and responsibilities. We must co-operate, support and communicate to each other as equal partners. We hope that information technology will enhance this spirit of co-operation.

Admittedly, this spirit of togetherness in the information field is in its infancy in Zambia. Nobody knows just how it is bound to evolve eventually. One can only hope that perhaps the recognition given to the role that information technology can play in national development, Zambia is on the way to the creation of an information infrastructure that

a. accepts the information user as paramount in any kind of information communication system

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b. believes in information as being vital to national development and must be treated as a national resource

c. information services and resources must be organised and managed to better serve priority areas in national development;

and above all

d. encourages the adoption and application of information technology to the processing and management of information in order to facilitate information generation, collection, storage, dissemination and utilization and enhances the activity of information sharing at national, regional and international levels (Draft Report on National Information Policy for Zambia, 1987).

My presence at this conference is an indication that we in Zambia are prepared to learn from colleagues all over the world on how their countries and information professions are approaching the issue of information technology and its impact on all types of information communications systems. And of course to hear what others think on what we are trying to do in Zambia.

CONCLUSION

At the start of this paper, I claimed that I was not so technically minded. And indeed, despite my repeated references to high-tech information technology such as computer technology, optical media, satellite telecommunications and the like, I still maintain the same stance. My only interest in information technology is the impact it is having on a society that is variously being described as post-industrial society, the information revolution, knowledge explosion, the IT age, the electronic age or the telecommunications era, which some people believe are being shaped by the advances resulting from the convergence of technologies in computing and telecommunications (Kirk, 1987: 45). It is because I believe in the nature of total communication and its fundamental importance to our contemporary society that I have always directed my thoughtful attention to it.

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It is in this same spirit that I would like to end my presentation by quoting in full what Professor Rousseau said in his inaugural lecture at the University College of Rhodesia and Nyasaland (now University of Zimbabwe) when referring to Terence's now most famous statement:

> "Homo sum: humani a me alienum puto" - meaning "I am a human being and nothing that concerns human beings do I consider outside my province." (Rousseau, 1957)

Information technology does certainly concern human beings in that it could eventually provide access to data and other information resources on unprecendented scale and speed and perhaps at unexpectedly low price (Corrigan, 1987) thus ensuring prompt sharing of other people's experiences, attitudes, knowledge and beliefs. That is what human communication is all about.

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